

Chemical Analysis Report

NE-DIST-2017-07-19-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Interlachen 2- 7/18/17**

Request ID: **RQ-2017-07-17-19**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 03-AUG-2017 12:16

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: COWPEN LAKE CENTER

Collection Date/Time: 07/18/2017 10:00

Field ID: G1NE0039 07182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914554	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P328798	
	EPA 300.0 Rev. 2.1	Chloride	9.9		mg Cl/L	P328865	
		Sulfate	3.7		mg SO4/L	P328867	
	SM 2120 B	Color (true)	10		PCU	P328803	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P328971	
	SM 2540 C-97	TDS	37		mg/L	P329281	
	SM 2540 D-97	TSS	2	I	mg/L	P329297	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P329084	
1914558	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P328954	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P328894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P328981	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P328928	
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P329126	
1914562	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P328789	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FANNY LAKE

Collection Date/Time: 07/18/2017 11:50

Field ID: 20020100 06202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914555	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P328798	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P328865	
		Sulfate	11		mg SO4/L	P328867	
	SM 2120 B	Color (true)	4.6	I	PCU	P328803	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P328971	
	SM 2540 C-97	TDS	47		mg/L	P329281	
	SM 2540 D-97	TSS	2	I	mg/L	P329297	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P329084	
1914559	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P328954	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P328894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P328981	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P328928	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P329126	
1914563	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P328789	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: GILLIS POND CENTER

Collection Date/Time: 07/18/2017 11:25

Field ID: G1NE0863 07182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914556	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P328798	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P328865	
		Sulfate	6.6		mg SO4/L	P328867	

Field ID: G1NE0863 07182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914556	SM 2120 B	Color (true)	7.0		PCU	P328803	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P328971	
	SM 2540 C-97	TDS	33		mg/L	P329281	
	SM 2540 D-97	TSS	2	I	mg/L	P329297	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329084	
1914560	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P328954	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P328894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P328981	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P328928	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P329126	
1914564	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P328789	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: GALILEE LAKE CENTER

Collection Date/Time: 07/18/2017 11:00

Field ID: G1NE0870 07182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914557	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P328798	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P328865	
		Sulfate	4.6		mg SO4/L	P328867	
	SM 2120 B	Color (true)	19		PCU	P328803	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P328971	
	SM 2540 C-97	TDS	35		mg/L	P329281	
	SM 2540 D-97	TSS	3	I	mg/L	P329297	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P329084	
1914561	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P328956	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P328894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P328982	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P328928	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P329126	
1914565	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P328789	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P328798

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P328865

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328865

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328867

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328954

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328956

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328894

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328981

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328982

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328928

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328789

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P328803

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P328971

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P329281

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329297

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329084

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329126

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328865

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	102		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328928

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	101		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P328971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P329084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P329126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914489	Chloride	99.7		P	90 - 110
1914585	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914489	Sulfate	97.1		P	90 - 110
1914585	Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914470	Ammonia-N	96.6	97.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914561	Ammonia-N	99.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914559	Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914491	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914561	NO2NO3-N	102	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P328928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914559	Total-P	104	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P328789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914562	O-Phosphate-P	98.2	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P329084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914940	Fluoride	99.4	100	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P329126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914491	Organic Carbon	96.6	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P328798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914345	Turbidity	1.99	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P328865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914585	Chloride	1.71	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P328867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914585	Sulfate	4.59	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P328954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914470	Ammonia-N	0.630	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914561	Ammonia-N	1.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914559	Kjeldahl Nitrogen	0.744	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914491	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914561	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914559	Total-P	5.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914562	O-Phosphate-P	1.82	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P328803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914484	Color (true)	3.54	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P328971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914940	Total Alkalinity	0.242	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P329281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914586	TDS	6.84	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914940	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914491	Organic Carbon	0.283	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77800
Included Lab Sample IDs: 1914554, 1914555, 1914556, 1914557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77817
Included Lab Sample IDs: 1914562, 1914563, 1914564, 1914565

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	100	P/P	90 - 110
O-Phosphate-P	99.1	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77821
Included Lab Sample IDs: 1914554, 1914555, 1914556, 1914557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A77822

Included Lab Sample IDs: 1914554, 1914555, 1914556, 1914557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	109	106	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77874

Included Lab Sample IDs: 1914558, 1914559, 1914560, 1914561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	99.2	P/P	90 - 110
Ammonia-N	99.6	99.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77884

Included Lab Sample IDs: 1914554, 1914555, 1914556, 1914557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77896

Included Lab Sample IDs: 1914558, 1914559, 1914560, 1914561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.5	93.0	P/P	90 - 110
NO2NO3-N	97.0	96.5	P/P	90 - 110
NO2NO3-N	99.5	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77897

Included Lab Sample IDs: 1914558, 1914559, 1914560, 1914561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	109	P/P	90 - 110
Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77900

Included Lab Sample IDs: 1914558, 1914559, 1914560, 1914561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	96.8	P/P	90 - 110
Total-P	97.5	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77941

Included Lab Sample IDs: 1914554, 1914555, 1914556, 1914557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A77952

Included Lab Sample IDs: 1914558, 1914559, 1914560, 1914561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.5	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.99	
EPA 300.0 Rev. 2.1	Chloride	98.4	96.9 99.7		1.71	
	Sulfate	99.4	98.6 97.1		4.59	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	96.6 97.3			0.630
	Ammonia-N	102	99.3 101			1.36
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	109 108			0.744
EPA 353.2 Rev. 2.0	NO2NO3-N	101	102 102			0.0
	NO2NO3-N	101	102 102			0.0
EPA 365.1 Rev. 2.0	Total-P	98.2	104 98.2			5.23
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.2 100			1.82
SM 2120 B	Color (true)				3.54	
SM 2320 B-97	Total Alkalinity	102			0.242	
SM 2540 C-97	TDS				6.84	
SM 4500 F-C-97	Fluoride	96.7	99.4 100			0.477
SM 5310 B-00	Organic Carbon	97.6	96.6 96.2			0.283

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1914554, 1914555, 1914556, 1914557
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1914554, 1914555, 1914556, 1914557
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1914554, 1914555, 1914556, 1914557
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1914558, 1914559, 1914560, 1914561
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1914558, 1914559, 1914560, 1914561
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1914558, 1914559, 1914560, 1914561
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1914558, 1914559, 1914560, 1914561
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1914562, 1914563, 1914564, 1914565
SM 2120 B / E31780	True Color measured at 450 nm	1914554, 1914555, 1914556, 1914557
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1914554, 1914555, 1914556, 1914557
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1914554, 1914555, 1914556, 1914557
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1914554, 1914555, 1914556, 1914557
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1914554, 1914555, 1914556, 1914557

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1914558, 1914559, 1914560, 1914561

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	07/19/2017			07/19/2017 16:03	DeAsia Armster	1914554, 1914555, 1914556, 1914557
EPA 300.0 Rev. 2.1	07/19/2017			07/20/2017	Julia Storbeck	1914554, 1914555, 1914556, 1914557
EPA 350.1 Rev. 2.0	07/19/2017			07/21/2017	Sofia Elnemr	1914558, 1914559, 1914560, 1914561
EPA 351.2 Rev. 2.0	07/19/2017	07/21/2017	Adrian Shelby	07/24/2017	Joseph Suarez	1914558, 1914559, 1914560, 1914561
EPA 353.2 Rev. 2.0	07/19/2017			07/24/2017	Beverly Y. Sanders	1914558, 1914559, 1914560, 1914561
EPA 365.1 Rev. 2.0	07/19/2017	07/21/2017	Vijayalakshmi Reddy	07/24/2017	Lipi Saha	1914558, 1914559, 1914560, 1914561
EPA 365.1 Rev. 2.0 dissolved	07/19/2017			07/19/2017 14:02	Lipi Saha	1914562
	07/19/2017			07/19/2017 14:05	Lipi Saha	1914563
	07/19/2017			07/19/2017 14:10	Lipi Saha	1914564
	07/19/2017			07/19/2017 14:11	Lipi Saha	1914565
	07/19/2017			07/19/2017 16:11	Tanya Welborn	1914554, 1914555
SM 2120 B	07/19/2017			07/19/2017 16:12	Tanya Welborn	1914556
	07/19/2017			07/19/2017 16:13	Tanya Welborn	1914557
	07/19/2017			07/21/2017	Dale L. Simmons	1914554, 1914555, 1914556, 1914557
SM 2320 B-97	07/19/2017			07/21/2017	Yijie Li	1914554, 1914555, 1914556, 1914557
SM 2540 C-97	07/19/2017			07/21/2017	Yijie Li	1914554, 1914555, 1914556, 1914557
SM 2540 D-97	07/19/2017			07/25/2017	Dale L. Simmons	1914554, 1914555, 1914556
SM 4500 F-C-97	07/19/2017			07/26/2017	Dale L. Simmons	1914557
	07/19/2017			07/25/2017	Ping Hua	1914558, 1914559, 1914560, 1914561
SM 5310 B-00	07/19/2017					